FIRE WEATHER OPERATIONS PLAN

2004

PENDLETON DISTRICT

NEW FOR 2004:
Pendleton will take over forecasting responsibility for zones 609, 610 and 611 beginning April 1st.
Wind gusts will be included when greater than 25 mph across a zone.
National Weather Service will support all non-Federal and non-wildfire activity.
Land Management shifts will run 9 hours this year from 7 am to 4 pm.
We will experiment with an interactive briefing web site this year.

LOCATION:
The Pendleton Fire Weather Office is located at the National Weather Service Office in Pendleton.
2001 NW 56th Dr. Pendleton, OR 97801.

HOURS:
The Pendleton Fire Weather Program is committed to establishing a program with staffed trained to respond to fire weather needs 24 hours per day. In addition a Fire Weather shift will be scheduled during the following times:

Fire Season	7:00 AM - 4:00 PM	7 days a week Normally mid-June to late-September.
Land Management Season	7:00 AM - 4:00 PM	5 days a week. Normally early April - Mid June and late September - October.

The National Weather Service office in Pendleton is open 24 hours a day , 7 day a week and is fully staffed. If there is a need to support a project, additional forecasters can be made available. However, under the provisions of the National Agencies/NWS Agreement (see appendix A), special services provided by the Pendleton Fire Weather office will be done on a reimbursable basis.

PHONE NUMBERS

Fire Weather Desk	(541) 276-8134
General	(541) 276-4493
Fax	(541) 276-8253

INTERNET ADDRESS and E-MAIL: **http://www.wrh.noaa.gov/pendleton/**
mike.vescio@noaa.gov
dennis.hull@noaa.gov
joe.solomon@noaa.gov

STAFF

Name	Position
Mike Vescio	Meteorologist-in-Charge
Dennis Hull	Warning Coordination Meteorologist
Jon Mittelstadt	Science and Operation Officer

All Senior and Journeyman Forecasters will train on the Fire Weather desk. However a core group of forecasters will provide the majority of forecasts. The core group includes:

Name	Position
Joe Solomon	Fire Weather Program Leader / Senior Forecaster / IMET
Mary Smith	Senior Forecaster
Roger Cloutier	Senior Forecaster
Vincent Papol	Senior Forecaster
Zaaron Allen	Senior Forecaster

Gordon Hepburn	Journeyman Forecaster
Diann Coonfield	Journeyman Forecaster
Cynthia Palmer	Journeyman Forecaster
Alan Polan	Journeyman Forecaster

COMMUNICATIONS

All forecasts including spot forecasts are input into the National Weather Service communication system, WIMS and on Pendleton's Internet home page. Forecasts can also be faxed to customers who do not have access to these systems. Internet address is: **www.wrh.noaa.gov/Pendleton**

WEATHER BRIEFINGS

Internet based weather briefings will begin about the end of May. During Land Management season briefings will be held Monday and Thursday. During peak fire season, normally mid June-September briefings will be daily at 0930 PDT. Phone briefings are available 24 hours per day. **New for 2004 the briefings include an experimental interactive briefing WEB site. This will allow forecasters and users to use drawing tools to interact during the briefing to highlight weather features.**

AGENCIES SERVED

USFS: United States Forest Service

BLM: Bureau of Land Management

NPS: National Park Service

BIA: Bureau of Indian Affairs

USF&W: United States Fish and Wildlife

ODF: Oregon Department of Forestry

DNR: Southeast Washington Area

County and Local Fire Jurisdictions in southeast Washington and central and northeast Oregon.

FORECAST SERVICES

Pre-suppression and Land Management Forecasts:

Routine land management forecasts are issued seasonally in the early and late part of the burning season. They are available twice a day Monday through Friday at 0900 and 1530 PDT. Specific start and stop dates are coordinated with customer agencies. Routine pre-suppression forecasts are available twice daily during the heart of the fire season, usually from mid June through late-September. They will be issued at 0900 and 1530 PDT.

Spot forecasts/Special request Forecasts:

Spot forecast are available year round for wildfires, prescribed fires, or any other critical land management activities conducted by **ALL** land management agencies. **The NWS will support non-federal, non-wildfire activities.** We are urging land managers to customize spot forecast requests for the parameters that are needed and provide critical weather thresholds that may adversely impact the burn, such as wind, relative humidity, or burn period. This will allow the forecaster to concentrate on the specific data and time line needed rather than a host of parameters that may be of little interest. Spot forecasts take precedence over normal office duties. **As implemented in 2003, the Region 6 National Weather Service offices will: require at least one observation from the fire site for prescribed spot requests. In addition valid times for spot forecasts will be 12 hours from issuance.**

Information required by the fire weather forecaster from the requesting agency is found on WS form D-1, items 1-12. A spot forecast for a planned ignition the next day may allow us to provide you with more lead time before the planned prescribed burn. **Feedback of how well the forecast verified is extremely valuable in order to provide more accurate subsequent forecasts.** As such the forecasters in Pendleton request all observations taken from the burn site be sent to our office. This may be accomplished through FAX or electronically. Spot forecast requests will be accepted either, electronically via our internet web site: **www.wrh.noaa.gov/Pendleton** or by fax at (541) 276-8253. Phone consultations are available 24 hours a day.

Fire Weather Watches and Red Flag Warnings:
Please refer to the Glossary for the formal definitions of Fire Weather Watches and Red Flag Warning events. Specific Red Flag criteria differ for each situation and district. The following are criteria which would warrant a Fire Weather Watch/Red Flag Warning in the Pendleton Fire Weather District:

Criteria:
Any or a combination of the following combined with very dry fuels are criteria for the issuance of a Fire Weather Watch or a Red Flag Warning depending on the lead time:

* **Dry Lightning** (scattered coverage and LAL of 6) - Thunderstorms producing less than .10 of an inch of precipitation and RH < 20%.

* **Any lightning** (wet or dry) after an extended dry period or low fuel moistures (as defined at the bottom of Table A).

* **Very low humidity**, RH of 10% or less in the afternoon with poor recovery at night...35% or less.

* **Haines Index of 6** in combination with RH of 15% or less.

* **Strong winds combined with low RH's** which meet the criteria determined by the RH/WIND in Table A shown below for zones (630, 631, 632, 633, 634, 635, 638, 675 & 681) for two hours at two locations OR:

  Zone 630 south of the Maury Mountains – the criteria will be wind 20 mph or greater and relative humidity of 10% or less.
  Zone 609: criteria is at least **ONE** RAWS reporting RH 20% or less **AND** wind speed 10 mph or Greater for 4 hours (in an 8-hour block) **AND** one other RAWS reporting the same for **ONE** hour.
  Zone 610: criteria is **TWO** stations for multiple hours in either scenario **A** or **B** below:
  A) HeHe Butte RAWS and Haystack RAWS reporting RH of 15 percent or less **AND** wind speed of 10 mph or greater for 4 hours in a 9-hour block (afternoon and evening)
  OR
  B) HeHe Butte RAWS **OR** Haystack RAWS reporting RH of 15 percent or less **AND** wind speed of 10 mph or more for 4 hours in a 9-hour block (afternoon and evening) **AND** one other RAWS reporting the same for two hours.
  Zone 611: criteria is any **TWO** stations (including Timothy RAWS) reporting RH of 15 percent or less **AND** wind speed of 10 mph or greater for at least **TWO** hours

Table A. National Weather Service Pendleton Wind vs RH Red Flag/Fire Weather Watch Criteria Table
Note: This is only one element in determining the necessity for a Red Flag Warning or Fire Weather Watch and shall not be the solitary justification.

Columbia Basin **ZONES 631 & 675**

SUSTAINED 2O FT WIND OVER WIDESPREAD AREA (10 MINUTE AVERAGE in MPH)

	5	10	15	20	25	30
30						W
25					W	W
20				W	W	W
15			**W**	W	W	W
10			**W**	W	W	W

RH(%)

The Central and Northeast Mountains **ZONES 630...632-635...638 AND ZONE 681**

SUSTAINED 2O FT WIND OVER WIDESPREAD AREA (10 MINUTE AVERAGE in MPH)

	10	15	20	25	30	35
30						
25					W	W
20			W	W	W	W
15			W	W	W	W
10		**W**	W	W	W	W

RH (%)

A Red Flag Warning or Fire Weather Watch may be issued if the wind and humidity fall within the 'warn' section of the table AND fuels, both live and dead are dry.
1. The forecaster is required to check with fire/land management agencies to ensure that 1 hr and 10 hr fuels are dry enough to support active fire.
2. 1000 Hr fuel moisture less than 12% and 100 Hr fuel moisture less than 10%.
3. Also refer to GACC "Dryness Level" for additional fuel moisture evaluation.

Dissemination:

Red Flag Warnings and Fire Weather Watches shall be issued using the Red Flag Statement (RFW) and will be headlined in the routine Fire Weather Forecast. All Red Flag Warnings and Fire Weather Watches will be cancelled using the Red Flag Warning Statement (RFW) and the Fire Weather Forecast will include a headline stating such.

All Red Flag Warnings will be disseminated utilizing the National Warning System (NAWAS) network

All issuances of Red Flag events will be coordinated beforehand with the agencies included in the watch/warning area and with adjacent fire weather offices if the watch/warning is for a zone on a common district boundary. In order to rapidly disseminate Fire Weather Watches/Red Flag Warnings or other information of rapidly changing or hazardous weather conditions that do not meet Red Flag criteria, but will affect fire control or pose a safety threat a priority calling

list has been established. NWFO Pendleton will contact the following dispatch office who will provide the appropriate agency notification. If the primary dispatch office is not available, the backup dispatch office may be requested to conduct the notification.

Primary Phone Number:	541-278-3732	Umatilla Dispatch
First Backup:	541-963-7171	NE Oregon Dispatch
Second Backup:	541-575-1321	Malheur Dispatch
Third Backup:	541-416-6800	Central Oregon Dispatch

NON-FORECAST SERVICES

There are several duties that fall into the non-forecast services, including but not limited to teaching assignments, customer meetings, customer consultations, preparation of annual reports, preparation of annual operating plans, program management, research and in-house training of personnel.

There is a need for advanced notice (3 weeks) for teaching assignments, customer meetings and consultations. The NWS-NWSEO Negotiated Agreement provides rules for scheduling of bargaining unit employees. NWS management has limitations regarding modification of the work schedule after it has become “fixed” without paying overtime.

All requests for teaching assignments, customers meetings and customer consultations will be honored provided the are scheduled more than three weeks ahead of time, and they do not conflict with other Fire Weather commitments. NWS Pendleton will make every effort to fulfill requests for teaching assignments, customer meetings and consultations that are scheduled with less than three weeks lead time, or conflict with other Fire Weather commitments. For training requests, please contact Joe Solomon at NWFO Pendleton (541) 276-5829 or joe.solomon@noaa.gov.

USER AGENCY RESPONSIBILITIES

There are several responsibilities of the user agencies including:

* 1300 PST NFDRS observations.
  * Site observations for Spot forecast requests. **A representative observation from the burn site is required for all prescribed fire spot forecast requests.**
  * Quality Control of RAWS observations
  * Timely maintenance of RAWS sites.

FORECAST VERIFICATION

Routine verification will be made on Red Flag Warnings and Spot Forecast turnaround times. In addition selected NFDRS trend forecasts for temperature, relative humidity, and fuel moisture will be verified. Results of the verification will be published in the Fire Weather Annual Summary. The National Weather Service will work with local fire agencies and the Pacific Northwest Coordination Group to develop a baseline for product verification.

FIRE WEATHER FORECASTER PROFICIENCY AND CURRENCY STANDARDS

The National Weather Service proficiency standards for service to the fire weather users are shown in Appendix A. The National Weather Service and the Pacific Northwest Coordination Group will review the progress in meeting the standards. Prior to each fire season, the Annual Operating Plan will provide a list of currently qualified forecasters and those expected to be qualified at each weather Forecast office who will be providing fire weather services during the upcoming year.

FORECAST DISTRICT

The Pendleton Fire Weather District currently serves central Oregon east of the Cascade mountain range from the Deschutes National Forest to Mt Hood, the northeast quadrant of Oregon (including Baker county and Harney county north of highway 20), and Southeast Washington (Benton, Franklin, Klickitat, Yakima Walla Walla, Columbia, Garfield and Asotin counties). **New this year is the addition of zones 609, 610 and 611.** Please see the district map for specific outlines of the Fire Weather Zones.

GEOGRAPHICAL AREA DESCRIPTIONS

The Pendleton Fire Weather forecast will be sectioned by Fire Weather Zone. This will result in 12 separate zone forecasts. These zones are based on terrain, elevation, weather characteristics, and political boundaries. The following are descriptions of each of the twelve Fire Weather Zones in the Pendleton Fire Weather district.

East Slopes of North Oregon Cascades – Fire Weather Zone 609

Represents the portion of the Mt Hood NF that lies east of the Cascade crest as well as adjacent foothills under ODF protection.

Bounded by the Cascade crest on the west, Columbia River on the north and the northern boundary of the Warm Spring Indian Reservation on the south. The eastern boundary lies along Oregon State Highway 197 south to the Deschutes River; then follows the Deschutes River south to the Warm Springs Indian Reservation boundary.

East Slopes of Central Oregon Cascades - Fire Weather Zone 610

Represents Warm Springs Indian Reservation and the Sisters RD of the Deschutes NF.

Bounded by the Cascade crest on the west and the boundaries of Warm Springs Reservation and Sisters RD on the north, east and south.

Deschutes NF (minus Sisters RD) - Fire Weather Zone 611

Includes the Deschutes NF with the exception of the Sisters RD…includes interior islands of private land and high Cascade wilderness areas.

Bounded on the west by Cascade crest...on the north by the southern boundary of the Sisters RD...and on the east and south by the Deschutes Forest boundary.

Central Oregon Mountains - Fire Weather Zone 630

This zone has the largest variability in terrain ranging from mountains with steep slopes, and narrow canyons to high elevation rolling hills, grasslands, meadows, and river valleys. Elevations range from about 3500 ft MSL to over 6000 ft MSL. Weather conditions can vary widely and are influenced by the terrain on a diurnal basis. Annual precipitation amounts range from near 10 inches on the grasslands to near 35 inches in the Ochoco mountains, with the majority of the precipitation occurring during the winter months. Heavy fuel loadings and the availability of ladder fuels in the higher elevations, give this area the potential to develop large, crowning project fires. Winds are generally light to moderate, but late day gusts often exceed 20 mph. July through September average between .50-.75 of precipitation due to scattered thunderstorms. This zone has a relatively low frequency of lightning with 15-20 thunderstorm days per year. Agencies responsible for fire protection in this area are Prineville ODF, Prineville BLM, Crooked River National Grasslands, and Ochoco National Forest

Columbia Basin of Oregon and Southeast Washington - Fire Weather Zone 631

This area is characterized as flat or smooth rolling hills in the Lower Columbia Basin of Northeast Oregon and Southeast Washington. Elevations range from about 200 ft MSL to approximately 3000 ft MSL along the foothills of the Blue Mountains. The weather in this area is characterized as warm to hot and dry during the summer with little precipitation, especially July through September. This is one of the two driest zones in the district. Precipitation averages range from 5-8 inches at the lowest elevations of the basin to near 20 inches along the foothills of the Blue mountains. The Cascade Mountains to the west and the Blue Mountains to the east have a considerable influence on this area. A “rain shadow” is often created from weather systems that move inland from the Pacific. Down slope foehn type winds are not uncommon during the fire season. The Columbia River Gorge frequently causes strong channeling of westerly winds into the area after a cold front passage, but with little rainfall. Gusts 20-25 mph are common on ridge tops. Occasional summer thunderstorms bring localized heavy rain, however average precipitation July through September is about .50 inches. This zone has a low frequency of lightning with around 5 thunderstorm days west of Arlington and 5-10 thunderstorm days east of Arlington. . Agencies responsible for fire protection in this area are ODF Pendleton, ODF The Dalles, Prineville BLM, Spokane BLM, Vale BLM, and southeast DNR.

Southern Blue and Strawberry Mountains - Fire Weather Zone 632

This zone is composed of varying and complex terrain, ranging from mountains with numerous steep sloped and narrow drainages to flat plateaus, meadows, and river valleys. Elevations range from about 3200 ft MSL in the John day valley to over 8500 ft MSL in the Strawberry mountains. Weather conditions vary widely and are largely influenced by the terrain on a diurnal basis. Winds are generally light to moderate and diurnal, however the higher elevation ridges can often report gusts 20-25 mph. Annual precipitation amounts range from less than 20 inches in some valleys to 50-55 inches in the highest mountains. The majority of the precipitation occurs during the winter snow season. July is the driest month averaging between .50-.70 of an inch. Otherwise June, August, and September average near 1 inch. This zone has a low to moderate frequency of lightning averaging 20-25 thunderstorm days per year. Agencies responsible are the ODF John Day, ODF Fossil, the Malheur National Forest, the Ochoco National Forest, Burns BLM, and Prineville BLM.

Northern Blue Mountains - Fire Weather Zone 633

Terrain in this area is highly variable and complex, ranging from mountains with steep slopes and narrow canyons to flat plateaus, meadows, and river valleys. Elevations range from below 2500 ft MSL in the Grande Ronde valley to near 9000 ft MSL in the Elkhorn mountains. Weather conditions vary widely and are largely influenced by the terrain on a diurnal basis. Winds are generally light and diurnal, however there are two areas of concern. The north end of the district can be influenced greatly by strong gusty winds moving up the Columbia and Snake rivers and the Grande Ronde valley is heavily influenced by pre-frontal winds out of the southeast. Annual precipitation amounts range from 15-20 inches in some valleys to 40-45 inches in the highest mountains. The majority of the precipitation occurs during the winter months. July is the driest month averaging between .50-.70 of an inch. Otherwise June, August, and September average near 1 inch. This zone has a low frequency of lightning averaging about 20 thunderstorm days per year. Agencies responsible are the ODF Baker City, the Umatilla National Forest**,** the Wallowa Whitman National Forest, the Malheur National Forest, and Vale BLM.

Eagle Cap District - Fire Zone 634

This area is entirely within the Wallowa mountains and the majority of Eagle Cap Wilderness area. Terrain in this area is very complex with high mountains and numerous very steep slopes and narrow drainages. Elevations range from below 3500 ft MSL to near 10,000 ft MSL. Weather

conditions vary widely and are largely influenced by the terrain on a diurnal basis. Winds are generally light and diurnal, however the ridges can see sustained winds 20-25 mph. This is the wettest zone with annual precipitation amounts ranging from near 40 inches in the Minam and Lostine river canyons to over 80 inches in the highest mountains. The majority of the precipitation occurs during the winter months. This zone has a low to moderate frequency of lightning with around 25-30 thunderstorm days per year. The agency chiefly responsible is the Wallowa Whitman National Forest.

Wallowa District - Fire Weather Zone 638

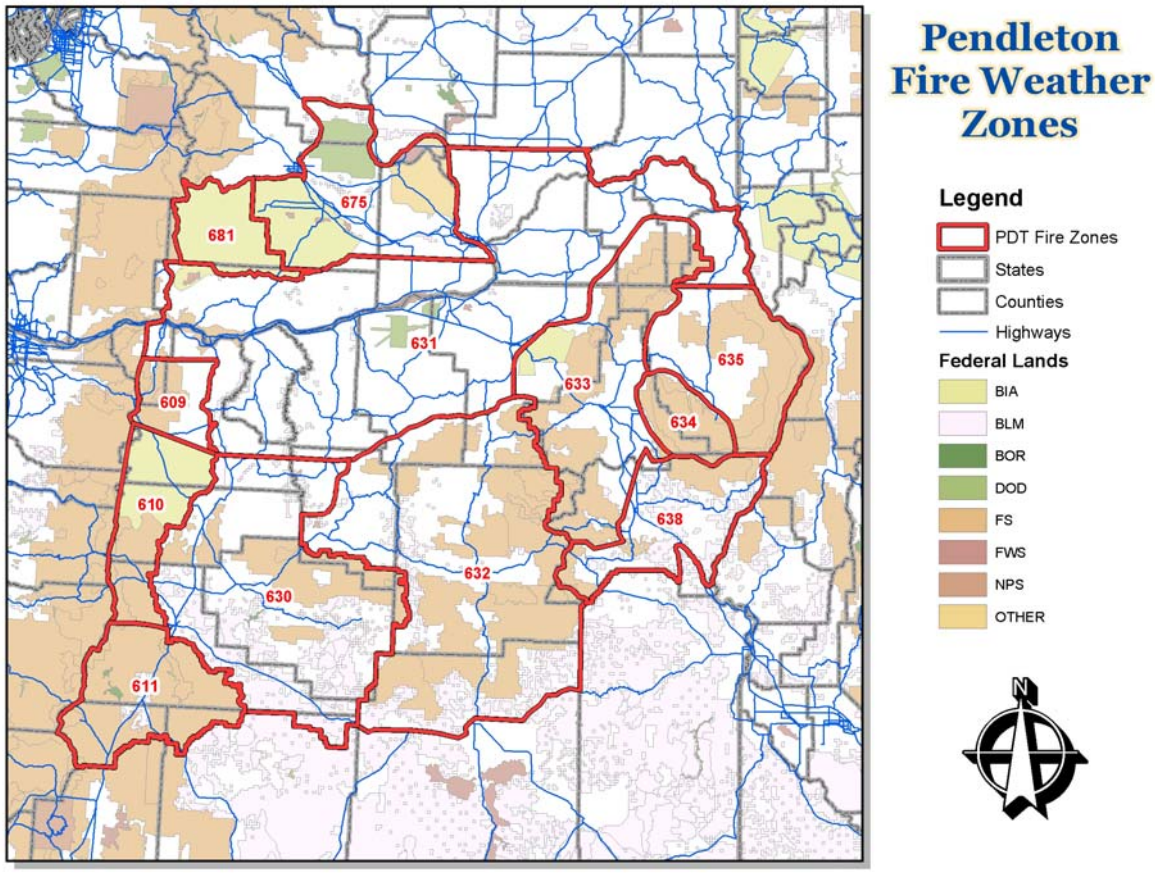
This zone contains highly variable terrain as well, ranging from mountains with steep, narrow drainages to the deep canyons of the Snake and Imnaha river, to open, flat valleys. Elevations range from near 4000 ft MSL to near 6000 ft MSL. Weather conditions vary widely and are largely influenced by the terrain on a diurnal basis. Winds are generally light and diurnal, however the Snake and Imnaha rivers can have a large influence on the winds due to channeling and venturi effect. Annual precipitation amounts range from 15-20 inches in some valleys to 40-45 inches in the highest mountains. The majority of the precipitation occurs during the winter months. July is the driest month averaging between .50-.70 of an inch. Otherwise August and September average near 1 inch. This zone has a low to moderate frequency of lightning averaging about 25-30 thunderstorm days per year. Agencies responsible are the ODF Baker City, ODF Wallowa, ODF Baker City, the Wallowa Whitman National Forest, and Vale BLM.

Eastern Washington Southern Columbia Basin - Fire Weather Zone 675

This area is characterized as a wide river basin with numerous west to east running ridge lines, and smooth rolling hills in the Lower Columbia Basin of Southeast Washington. Elevations range from about 200 ft MSL to just below 4000 ft MSL along the Rattlesnake Hills. The weather in this area is characterized as warm to hot and dry during the summer with little precipitation, especially July through September. This is one of the two driest zones in the district with precipitation averages ranging from 5-7 inches near the Columbia river to 12 inches along the Rattlesnake Hills. The Cascade Mountains to the west and the Blue Mountains to the east have a considerable influence on this area. A “rain shadow” is often created from weather systems that move inland from the Pacific. Also, down slope foehn type winds are not uncommon during the fire season. The Columbia River Gorge frequently causes strong channeling of westerly winds into the area after a cold front passage, but with little rainfall. Afternoon gusts 20-25 mph are common on ridge tops. Occasional summer thunderstorms bring localized heavy rain, however average precipitation July through September is about .50 inches. This zone has a low frequency of lightning with around 5 thunderstorm days per year . Agencies responsible for fire protection in this area are the Yakama BIA, Hanford Fire, Southeast DNR, Spokane BLM, Benton County Fire, Franklin County Fire

Yakama Alpine District - Fire Weather Zone 681

This areas covers the extreme southern Cascades crest down to the southern boundary of the Yakima Indian agency. Elevation ranges from near 1500 ft MSL to 5600 ft MSL. This district has pronounced climate differences, form the marine air influence near the Cascade crest, to the dry, desert climate near the Columbia River. Annual precipitation amounts range from less than 15 inches to over 40 inches. It is relatively windy with a low occurrence of lightning. It averages about 10-15 thunderstorm days per season from June through September. The agency responsible for fire protection in this area is the Yakama BIA.



APPENDIX A

FIRE WEATHER FORECASTER PROFICIENCY AND CURRENCY

A. Proficiency

1. Completion of fire weather forecaster training requirements (defined in ROML W-20-99). In addition, items 7,8 and 9 under the Meteorologist Baseline column in appendix B will be required for this agreement.

2. Work no less than 5 shifts with a qualified fire weather forecaster, handling all duties of that shift including(but no limited to) the preparation and issuance of:

-routine fire weather forecasts (pre-suppression).
-spot forecasts
-briefings
-non-routine forecasts

As many training shifts as possible should be worked during the critical fire weather season

3. WFO Fire Weather Program Leader and appropriate WFO Management concur and sign off on proficiency.

B. Currency

1. Forecaster has prepared and issued 15 fire weather forecasts in past year.

2. Forecaster has prepared and issued 10 percent of office spots or 5 spots in past year or completion of an IMET assignment.

C. Proficiency Renewal

Purpose: To renew fire weather proficiency of a forecaster if they have not met currency standards in element B.

1. Forecaster works no less than 3 shifts with a qualified fire weather forecaster or successfully complete drill(s) which includes key aspects of local fire weather program.

2. WFO Fire Weather Program Leader and WFO Management concur and sign off on proficiency.